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PATENT SPECIFICATION

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COMPLETE SPECIFICATION

An improved Multiple Three Pin Socket Outlet Unit

We, CLANG LIMITED, a British Company, and HAROLD EDGAR AUSTEN, a British Subject, both of Crown Yard, Cricklewood, London, N.W.2., and CECIL DENINGTON HARWOOD, a British Subject, of 20, Pierpoint Road, Acton, London, W.3, do hereby declare the invention for which we pray that a Patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to the provision of an improved multiple three pin socket outlet unit. By multiple three pin socket outlet unit we mean a unit having more than one socket outlet, e.g. a double or triple socket outlet.

One object of the invention is to provide a multiple socket outlet which can be mounted on a standard single socket wall box.

The invention is of particular value when additional socket outlets have to be provided on existing installations as the wall boxes need not be changed and no additional wiring is required. It is simply a matter of removing the existing single socket outlet and replacing it by a multiple socket outlet according to the invention.

The invention can also be used with advantage on new installations as existing double socket outlets require a box which is double the size of, and more expensive than, the single outlet box.

In the following description we shall refer to double socket outlet units by way of example.

According to the present invention we provide a multiple, e.g. twin, three pin socket outlet unit to fit on a standard single socket wall box either horizontally or vertically and having sockets internally linked with three terminals projecting from the base of the unit into the wall box, the said terminals being accessible without removing the cover of the unit.

In the design of a double socket outlet unit according to the invention the following construction is provided:—

considerations must therefore be taken into consideration:—

(a) As wall boxes are used for flush type accessories it is desirable for the double socket outlet to project as little as possible from the wall to maintain harmony with the other accessories in the installations.

(b) The width of the double socket outlet should not greatly exceed that of the square single socket outlet when used on existing installations to lessen the risk of being masked by furniture.

(c) It should also be possible to mount the double socket outlet in a vertical position when the wall box is placed too near a wall or other obstacle to permit horizontal mounting. It should also be reversible to give right or left cord entry to the plugs as required.

(d) To comply with I.E.E. rules that part of the socket outlet base which overlaps the wall box should have no exposed live parts.

(e) The earth sockets should be automatically connected to the wall box by one or both of the fixing screws.

(f) The terminals should project into the wall box to make sure that the cable slack in existing installations can reach them.

In order that the invention may be clearly understood it will now be described more fully by way of example, and with reference to the accompanying drawings in which:—

Figure 1 is a plan of a double three pin socket outlet unit in accordance with the invention, the cover of the unit having been removed.

Figure 2 is a plan of the cover.

Figure 3 is a plan of the lower end of the unit drawn to an enlarged scale.

Figure 4 is a section on line IV—IV of Figure 3.

Figure 5 is a section on line V—V of Figure 3, and.

Figure 6 is a section on line VI—VI of Figure 3.

The double socket outlet unit hereinafter

simply called the unit, consists of an oblong moulded base 1 with socket contacts, links, terminals and shutter mechanisms mounted thereon and a moulded cover 2 attached to it by screws from the underside of the base. The cover 2, which is provided with the necessary clearance holes for the plug pins, does not have to be removed during installation. Two unit fixing screws 3 are provided on the vertical centre line.

The two socket outlets are side by side and spaced so that the earth pins, which are the longest, pass through the unit and project into the wall box. This makes it possible to reduce the projection of the unit from the wall.

The earth sockets are connected together by a link 4 on which is mounted a hollow metal pillar 5 which projects into a hole in the cover and forms a seating and connection for the top unit fixing screw 3. The bottom unit fixing screw 3 seats in the moulded cover 2 and acts as an additional cover fixing when the unit is mounted in position. An earth terminal is attached to one of the earth sockets and projects from the base of the unit into the wall box.

The two "L" sockets are formed by a flat "U" shaped link 6 with an extension 7 bent up at right angles at each extremity to form a contact surface and by contact springs 8 attached to each arm and adapted to grip the plug pin 9 between the contact surface of the link 6 and the contact spring 8. The left hand contact spring 8 is attached to the link 6 by riveting a terminal 10 to the underside of the link 6. The terminal 10 projects through a hole 11 in the base 1 into the wall box and forms the "L" terminal. The right hand contact spring 8 is attached to the link by a plain rivet as at 12.

The two "N" sockets are formed in a similar manner by a U-shaped link 13 but in this case the bottom member of the "U" shaped link is stepped up to pass over the "L" link 6 to give the necessary clearance for an interposed insulating member. The "N" terminal secures the right hand contact spring 14 and the left hand contact spring 14 is attached to the link 13 by a plain rivet similar to the rivet 12.

Both contact links 6 and 13 have a hole in the bottom member of the "U" to accommodate a circular boss 15 formed in the base moulding 1 which houses the bottom unit fixing screw 3. A spacer 16 of insulating material is mounted on the boss 15 between the two contact links to maintain the necessary electrical clearance.

The contact link assemblies 6 and 13 are held in the base 1 by two moulded retainers 17 which bridge and hold the two link arms at each socket outlet. Each retainer 17 is situated immediately below the "L" and "N" sockets and is attached by a central screw 18 to the base moulding 1. The retainers 17

serve as a backing for the bent up contact surfaces 7 of the links 6 and 13 and also prevent the cables when connected to the terminals from protruding into the shutter mechanisms.

The earth sockets and shutter mechanism may be as described in our Patent Application No. 9978/57 (Serial No. 836,565) of even date.

The unit described above is for plugs having three rectangular pins but can easily be adapted for plugs having three round pins.

It is also possible, as described above, to provide a triple socket outlet which can be mounted on a standard double socket wall box. The construction is generally similar to that described for the double socket outlet except that both the three "L" sockets and the three "N" sockets are linked together by links 6 and 13 with their respective terminals mounted at the centre socket outlet.

The three earth sockets and earthing pillar are also linked together by a link 4 with the "E" terminal at the centre socket outlet.

WHAT WE CLAIM IS:—

1. A multiple three pin socket outlet unit to fit on a standard single socket wall box either horizontally or vertically and having sockets internally linked with three terminals projecting from the base of the unit into the wall box, the said terminals being accessible without removing the cover of the unit.

2. A multiple three pin socket outlet unit adapted to fit on a standard single socket wall box and having earth sockets connected by a link mounted on a metal pillar which forms a seating and connection for a unit fixing screw, flat "U" shaped metal links connecting the "L" sockets and the "N" sockets and three terminals projecting from the base of the unit and positioned to extend into the wall box, the said terminals being accessible without removing the cover of the unit.

3. A unit according to claim 2 wherein the "U" shaped links have an extension bent up at the right angles at each extremity to form a contact surface, contact springs being provided to grip a plug pin when inserted into a socket.

4. A unit according to claim 3 where one of the contact springs is attached to each link by riveting a terminal to the underside of the link in such a position that the terminal projects through a hole in the base to form the "L" or "N" terminal of the unit.

5. A unit according to claim 3 or 4 wherein the contact links have a hole in the bottom member of the "U" to accommodate a circular boss formed in the base moulding which also houses the bottom unit fixing screw, a spacer of insulating material being mounted on the boss between the two links.

6. A unit according to claim 5 wherein the contact link assemblies are held in the base by two moulded retainers which bridge and

hold the two link arms at each socket outlet and which are attached to the base moulding.

7. A unit according to Claim 6 wherein the retainers are positioned to serve as a backing for the bent up contact surfaces of the links.

8. A multiple three pin socket outlet unit

substantially as hereinbefore described with reference to the accompanying drawings.

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PROVISIONAL SPECIFICATION

An improved Multiple Three Pin Socket Outlet Unit

We, CLANG LIMITED, a British Company, and HAROLD EDGAR AUSTEN, a British Subject, both of Crown Yard, Cricklewood, London, N.W.2, and CECIL DENINGTON HARWOOD, a British Subject, of 20, Pierpoint Road, Acton, London, W.3, do hereby declare this invention to be described in the following statement:—

This invention relates to the provision of an improved multiple three pin socket outlet unit. By multiple three pin socket outlet unit we mean a unit having more than one socket outlet, e.g. a double or triple socket outlet.

One object of the invention is to provide a multiple socket outlet which can be mounted on a standard single socket wall box.

The invention is of particular value when additional socket outlets have to be provided on existing installations as the wall boxes need not be changed and no additional wiring is required. It is simply a matter of removing the existing single socket outlet and replacing it by a multiple socket outlet according to the invention.

The invention can also be used with advantage on new installations as existing double socket outlets require a box which is double the size of, and more expensive than, the single outlet box.

In the following description we shall refer to double socket outlet units by way of example.

According to the present invention we provide a multiple (e.g. twin) three pin socket outlet unit of minimum width and projection to fit on a standard single socket wall box either horizontally or vertically and having sockets internally linked with three terminals projecting from the base of the unit into the wall box, the said terminals being accessible without removing the cover of the unit.

In the design of a double socket outlet unit according to the invention the following considerations must therefore be taken into consideration:—

(a) As wall boxes are used for flush type accessories it is desirable for the double socket outlet to project as little as possible from the wall to maintain harmony with the other accessories in the installation.

(b) The width of the double socket outlet should not greatly exceed that of the square single socket outlet when used on existing installations to lessen the risk of being masked by furniture.

(c) It should also be possible to mount the double socket outlet in a vertical position when the wall box is placed too near a wall or other obstacle to permit horizontal mounting. It should also be reversible to give right or left cord entry to the plugs as required.

(d) To comply with I.E.E. rules that part of the socket outlet base which overlaps the wall box should have no exposed live parts.

(e) The earth sockets should be automatically connected to the wall box by one or both of the fixing screws.

(f) The terminals should project into the wall box to make sure that the cable slack in existing installations can reach them.

A double socket outlet unit including the above features (a) to (f) will now be described by way of example.

The double socket outlet unit hereinafter simply called the unit, consists of an oblong moulded base with socket contacts, links, terminals and shutter mechanism mounted thereon and a moulded cover attached to it by screws from the underside of the base. The cover, which is provided with the necessary clearance holes for the plug pins, does not have to be removed during installation. The two unit fixing screws are on the vertical centre line.

The two socket outlets are side by side and spaced so that the earth pins, which are the longest, pass through the unit and project into the wall box. This makes it possible to reduce the projection of the unit from the wall.

The earth sockets are connected together by a link on which is mounted a hollow metal pillar which projects into a hole in the cover and forms a seating and connection for the top unit fixing screw. The bottom unit fixing screw seats in the moulded cover and acts as an additional cover fixing when the unit is mounted in position. An earth terminal is attached to one of the earth sockets and projects from the base of the unit into the wall box.

The two "L" sockets are formed by a flat "L" shaped link with an extension bent up at right angles at each extremity to form a contact surface and by contact springs attached to each arm and adapted to grip the plug pin between the contact surface of the link and the contact spring. The left hand contact spring is attached to the link by riveting a terminal to the underside of the link. The terminal projects through a hole in the base.

into the wall box and is the "L" terminal. The right hand contact spring is attached to the link by a plain rivet.

- 5 The two "N" sockets are formed in a similar manner but the bottom member of the "U" shaped link is stepped up to pass over the "L" link with a sufficient gap to give the necessary electrical clearance. The "N" terminal secures the right hand contact spring and the left hand contact spring is attached to the link by a plain rivet.
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Both contact links have a hole in the bottom member of the "U" to accommodate a circular boss formed in the base moulding which houses the bottom unit fixing screw.

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A ring spacer of insulating material is mounted on the boss between the two contact links to maintain the necessary electrical clearance.

- 20 The contact link assemblies are held in the base by two moulded retainers which bridge and hold the two link arms at each socket outlet. Each retainer is situated immediately below the "L" and "N" sockets and is attached by a central screw to the base moulding. The retainers serve as a backing for the
- 25

bent up contact surfaces of the links and also prevent the cables from protruding into the shutter mechanisms.

The earth sockets and shutter mechanism may be as described in our Patent Application No. 9978/57 (Serial No. 836,565) of even date.

The unit described above is for plugs having three rectangular pins but can easily be adapted for plugs having three round pins.

It is also possible, as described above, to provide a triple socket outlet which can be mounted on a standard double socket wall box. The construction is generally similar to that described for the double socket outlet except that both the three "L" sockets and the three "N" sockets are linked together with their respective terminals mounted at the centre socket outlet.

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The three earth sockets and earthing pillar are also linked together with the "E" terminal at the centre socket outlet.

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